

## CONTENTS

	Page
EXECUTIVE SUMMARY .....	v
LIST OF FIGURES .....	vi
LIST OF TABLES .....	vii
ABSTRACT .....	1
1. INTRODUCTION.....	1
2. NETWORK LEVEL VULNERABILITY .....	3
2.1 Telecommunication System Architectures.....	3
2.1.1 Public Switched Telephone Network.....	4
2.1.1.1 Switching System .....	6
2.1.1.2 Signaling System .....	8
2.1.2 Internet.....	9
2.1.3 Cellular Mobile Radio Telephone .....	10
2.1.4 Private Radio Networks.....	11
2.2 Network Level Vulnerability Summary.....	12
3. NODAL LEVEL VULNERABILITY .....	12
3.1 PSTN Switching and Signaling Stations.....	13
3.2 Cellular Sites.....	14
3.2.1 Base Stations .....	14
3.2.1.1 Antennas.....	15
3.2.1.2 Cables .....	16
3.2.1.3 RF Equipment .....	17
3.2.2 Mobile Telephone Switching Offices.....	19
3.3 Private Radio Networks Dispatch Stations .....	19
3.4 Nodal Level Vulnerability Summary.....	19
4. CONCLUSIONS.....	19
5. REFERENCES.....	21
APPENDIX A: PLANE WAVE PENETRATION OF REINFORCED CONCRETE ...	23
APPENDIX B: CABLE COUPLING .....	27